

TWO STAGE ELECTRIC HYDRAULIC PUMP

NOTE:

- Inspect the pump upon arrival.
- Read and carefully follow these instructions. Most problems with new equipment are caused by improper operation or installation.

SAFETY PRECAUTIONS



WARNING

- All WARNING statements must be carefully observed to prevent personal injury.

General Operation

- Before operation the pump, all hose connections must be tightened with proper tools. Do not overtighten. Connections need only be tightened securely and leak-free. Overtightening may cause premature thread failure or may cause high pressure fittings to split at pressures lower than their rated capacities.
- Should a hydraulic hose ever rupture, burst, or need to be disconnected, immediately shut off the pump and shift the control valve twice to release all pressure. Never attempt to grasp a leaking hose under pressure with your hands. The force of escaping hydraulic fluid could cause serious injury.
- Do not subject the hose to potential hazard such as fire, extreme heat or cold, sharp surfaces, or heavy impact. Do not allow the hose to kink, twist, curl, or bend so tightly that the oil flow within the hose is blocked or reduced. Periodically inspect the hose for wear because any of these conditions can damage the hose and possibly result in personal injury.
- Do not use the hose to move attached equipment. Stress may damage the hose and possibly cause personal injury.
- Hose material and coupler seals must be compatible with the hydraulic fluid used. Hoses also must not come in contact with corrosive materials such as creosote-impregnated objects and some paints. Consult the manufacturer before painting a hose. Never paint the couplers. Hose deterioration due to corrosive materials may result in personal injury.

Pump

- Do not exceed the PSI hydraulic pressure rating noted on the pump name plate or tamper with the internal high pressure relief valve. Creating pressure beyond rated capacities may result in personal injury.
- Before replenishing the oil level, retract the system to prevent overfilling the pump reservoir. An overfill may cause personal injury due to excess reservoir pressure created when cylinders are retracted.

Cylinder

- Do not exceed rated capacities of the cylinders. Excess pressure may result in personal injury.
- Do not set poorly-balanced or off-center loads on a cylinder. The load may tip and cause personal injury.

Safety Precautions (Continued)

Electrical Supply

- Do not use an ungrounded (two-prong) extension cord.
- Avoid conditions which could create an electrical hazard.
- If the power cord is damaged or wiring exposed, replace or repair immediately.
- Check the voltage rating on the pump motor name plate to be certain the outlet you are using is of the proper voltage.
- Correct voltage is required for pump to operate properly.
- Low voltage may cause the following: ■ overheated motor; ■ motor fails to start under load; ■ motor surging when trying to start; ■ motor stalls before maximum pressure is reached.
- Always check the voltage at the motor with the pump running at full pressure.
- Never run the motor on long, light gauge extension cords.
- Low voltage = 10% less than name plate voltage.

SET-UP AND OPERATION

Electric Motor



WARNING: To help avoid possible personal injury,

- Any electrical work must be done by a qualified electrician.
- Disconnect the power supply before removing the motor casing cover or performing repairs or maintenance.
- Changing the voltage on this unit is an involved, and if improperly performed, hazardous procedure. Consult the manufacturer for specific information before attempting any rewiring.

Hydraulic Set-up

1. Clean the areas around the oil ports of the pump and hydraulic cylinders.
2. Inspect the threads and fittings for signs of wear or damage and replace as needed. Clean all hose ends, couplers, and union ends.
3. Remove the plastic thread protectors from the hydraulic outlets. Connect the hose assembly to the valve and couple the hose to the cylinder.
4. Seal all pipe connections with pipe sealant. Teflon tape can be used to seal hydraulic connections provided only one layer of tape is used. Apply the tape carefully to prevent it from being pinched by the coupler and broken off inside the pipe end. Any loose pieces of tape could travel through the system and obstruct the flow of oil or cause jamming of precision-fit parts.

Filling the Reservoir

NOTE: The pump is shipped without oil in the reservoir. Oil is included in a separate container.

1. Thoroughly clean the area around the filler cap with a clean cloth to prevent contamination of the oil by foreign particles.
2. Remove the filler cap and insert a clean funnel with filter. Reservoir may be filled to within 1" of the top cover with all cylinders retracted. Replace filler cap and check to see that the breather-hole in the cap is open. **Note: If oil foaming becomes a problem, reduce the oil level to 2" below the cover plate.**

Pump Operation

When operating the pump for the first time:

1. All valve and hose connections should be secure, and the reservoir should be filled to the proper level. Connect the power supply.
2. Depress the advance button on the remote hand switch. The cylinder will advance as long as the hand switch button is depressed. If the advance button is released, the motor will stop and the cylinder will hold position. The cylinder can be retracted by depressing the retract button on the remote hand switch. The cylinder will again advance if the hand switch advance button is again depressed.
3. Refer to the section titled "Bleeding Air from the System."
4. Check the oil level in the reservoir and add oil if necessary. The reservoir oil level should be within 1" of the pump cover plate.

Adjusting the External Pressure Regulator

For easy adjustment of the pressure regulator, always adjust the pressure setting by INCREASING to a desired pressure setting.

1. Loosen the locking nut on the pressure regulator. Turn the adjusting knob a few turns counterclockwise (CCW) to decrease the pressure setting to a lower than desired pressure.
2. Start the pump. Slowly turn the adjusting knob clockwise (CW) to gradually increase the pressure setting. When the desired pressure setting is attained, lock the adjusting knob into position by tightening the locking nut.

PREVENTIVE MAINTENANCE

-  **WARNING:** To help avoid possible personal injury,
- Disconnect the pump from the poser supply before performing maintenance or repair procedures.
 - Repairs and maintenance should be performed in a dust-free area by a qualified technician.

Bleeding Air from the System

Air can accumulate in the hydraulic system if the reservoir oil level has been permitted to get too low. This air causes the cylinder to respond in an unstable or slow manner. To remove the air:

1. Position hydraulic cylinder(s) on their sides with the couplers located upward and at a lower level than the pump.
2. Remove any load from the cylinder(s), and cycle the hydraulic system through several cycles (fully extend and retract the cylinders).

Hydraulic Fluid Level

1. Check the oil level in the reservoir after each 10 hours of use. Maximum capacity is when the oil is 1" below the cover plate with all cylinders retracted.
2. When adding oil, use only Power Team hydraulic oil (215 SSU @ 100°F). Retract the cylinders and disconnect the power supply. Clean the area around the filler plug, remove the plug, and insert a clean funnel with filter.
3. The frequency of oil changes will depend upon the general working conditions, severity of use, and overall cleanliness and care given the pump. Three hundred hours of use under general shop conditions is considered a standard change interval. Drain, flush, and refill the reservoir with Power Team hydraulic oil (215 SSU @ 100°F).

Draining and Flushing the Reservoir

IMPORTANT: Clean the pump exterior before the pump interior is removed from the reservoir.

1. Remove the screws that fasten the motor and pump assembly to the reservoir.

IMPORTANT: Do not damage the gasket or bump the filter or pressure regulating valves when lifting the pump and motor off the reservoir.

2. Drain oil and clean the inside of the reservoir. Fill with a suitable nonflammable flushing oil. Rinse the filter clean.
3. Place the pump and motor assembly back onto the reservoir and secure with four of the cover screws. Assemble the screws in opposite corners of the housing.

IMPORTANT: Connect a hose to the advance/retract port of the pump manifold. Place the other end of the hose into the oil filler plug hole.

4. Run the pump for several minutes. Then disconnect the motor and pump assembly, and drain and clean the inside of the pump reservoir.
5. Fill the reservoir to 1" below the cover plate with Power Team hydraulic oil. Place the pump and motor assembly (with gasket) onto the reservoir. Thread in screws and tighten securely and evenly.

Maintenance and Cleaning

1. Keep the pump's outer surface as free from dirt as possible.
2. Seal all unused couplers with thread protectors.
3. Keep all hose connections free of dirt and grime.
4. The breather-hole in the filler cap must be clean and unobstructed at all times.
5. Equipment connected to the pump must be kept clean.
6. Use only Power Team hydraulic oil in this pump. Change as recommended (approx. every 300 hours).
7. Periodically lubricate the electric pump motor.

TROUBLE-SHOOTING GUIDE



WARNING: To help avoid possible personal injury,

- All repair work or trouble-shooting must be done by qualified personnel familiar with this equipment.
- Use the proper gauges and equipment when trouble-shooting.

NOTE:

- It is best to check for leaks by using a hand pump and applying pressure to the suspect area without the motor running. Watch for leaking oil and follow it back to its source.
- Plug the outlet ports of the pump when checking for leakage to determine if the leakage is in the pump or if it is in the cylinder or tool.
- Refer to parts list #101385 and the hydraulic and electric schematics found in that parts list when using this trouble-shooting guide.

PROBLEM	CAUSE	SOLUTION
Motor does not run	1. Unit is not plugged in. 2. No voltage supply. 3. Broken lead wire or defective power cord plug. 4. Defective motor.	1. Plug in unit. 2. Check line voltage. 3. Replace defective parts. 4. Replace or repair motor.
Pump is not delivering oil or delivers only enough oil to advance cylinder(s) partially or erratically	1. Oil level too low. 2. Air in system. 3. Dirt is in pump or filter is plugged. 4. Cold oil or oil is too heavy (hydraulic oil is of a higher viscosity than necessary). 5. Relief valve or low pressure unloading valve out of adjustment. 6. Sheared drive shaft key(s). 7. Motor rotating in wrong direction.	1. Fill reservoir to 1" below the cover plate, maximum. 2. Bleed the system. 3. Pump filter should be cleaned and, if necessary, pump should be dismantled and all parts inspected and cleaned. 4. Change to lighter oil. 5. Readjust as needed. 6. Replace. 7. Reverse rotation.

PROBLEM	CAUSE	SOLUTION
Pump will not build full pressure	1. Faulty pressure gauge. 2. Check for external leakage. 3. Inspect the pump for internal leakage. 4. Sheared key(s). 5. High pressure pump inlet or outlet ball checks in the pump are leaking.	1. Calibrate gauge. 2. Seal any faulty pipe fittings with pipe sealant. 3. Same procedure as above but for leaks around the entire inner mechanism. If there are no visible leaks the low-to-high pressure ball check may be leaking. Remove all parts. Inspect the check body for any damage to the seat areas. Clean and reseal if necessary. Inspect the ball for damages and replace if necessary, then reassemble. 4. Replace. 5. Reseat or replace valve head.
Electric motor cuts out	1. Extension cord is too long and/or not of sufficient gauge. 2. Faulty motor. 3. Overheated motor can trip circuit breaker in shop power panel.	1. Replace. 2. Replace and repair. 3. Allow motor to cool, reset circuit breaker located in shop power panel.
Foaming oil	1. Oil being splashed by counter weight.	1. Lower oil level to approximately 2" below the cover plate.
Cylinder(s) will not retract	1. Check the system pressure; if the pressure is zero, the control valve is releasing pressure and the problem may be in the cylinder(s), mechanical linkage connected to cylinder(s), or quick-disconnect couplings. 2. Inadequate air pressure (air motor only).	1. Check the cylinders for broken return springs and check couplers to ensure that they are completely coupled. Occasionally couplers have to be replaced because one check does not stay open in the coupled position. 2. Increase air pressure.
Pump delivers excess oil pressure	1. Pressure gauge is not accurate. 2. Relief valve not properly set.	1. Calibrate gauge. 2. Reset the relief valve.